REMARKS

Applicants have amended Claim 1 and have retained Claims 2 - 6, and 8.

The Examiner is respectfully requested to reconsider the rejection of claims 1 - 17 under 35 U.S.C. §103(a) as being unpatentable over Tai, et al. (U.S. Patent 6,411,745) in view of Ilbery, et al. (U.S. Patent 6,476,934).

The Examiner in his rejection states that Tai, et al. disclose many of the elements of Applicants's invention. The Tai, et al. reference provides a "generic" type disclosure as to the method used in accordance with the disclosure. Considering the teaching that is disclosed in the Tai, et al. reference, there is no disclosure relative to the object of Applicants' invention.

Applicants concede that any image processing algorithm, of necessity, must operate on the image pixels. Further, many such algorithms use a neighborhood region about a given pixel, perform some processing and then send the result to an output device.

The differences between the Tai, et al and Ilbery, et al. patents is the processing that is performed. The processing of Tai, et al. is "a linear interpolation of the neighboring original pixels comprising the window....." Applicants' processing is never a linear interpolation of neighboring pixels. The purpose of the Tai, et al. patent is to reduce moire patterns and so interpolation is helpful. Applicants have a different object and purpose and perform different processing steps.

The reference to Ilbery, et al. also processes an image pixel by pixel, and uses a neighborhood region and produces an output. In Ilbery, et al., processing a pixel depends upon results of previously processed pixels. This is a necessity for their invention because the purpose is to compensate for output errors of previously processed pixels in order to make the final result more accurate. This type of operation must be done sequentially. Applicants' invention involves using a neighborhood, but does not use the output results of previously processed pixels, so it is not a sequential operation. The details in Ilbery, et al. of what processing is performed are completely different and much of the patent explains this in detail. (2)

Accordingly, the nature of the processing is an important issue; not just that some processing is done and that some decisions are made. The processing as among the prior art references and Applicants' invention are totally different. The mention of "halftoning" does not warrant rendering Applicants' invention obvious. Applicants scan both half tone and text. Halftoning is only a part of their invention whereas the reproduction of a scanned halftone image is the sole focus of Tai, et al. and Ilbery, et al. Applicants' invention deals with reproduction of scanned images containing text, line art and halftoned images. Applicants' invention is not specifically designed to eliminate Moire patterns in the reproduced halftoned image as in Tai et al., or in being extremely accurate in reproducing the light and dark halftoned regions as in Ilbery et al. Applicants for example, sharpen text using their method whereas Tai, et al.in fact blur their images through interpolation. (3)

The different cases discussed in columns 18 and 21 of Ilbery, et al. depend on the location of the pixel (first or edge pixel), or on pixels in a previous image frame (e.g., of a movie type image) and may include some other cases. Applicants submit that Ilbery et al does employ different processing steps for different cases. However the nature of this processing is different, and for a different purpose.

With respect to the specific steps recited in that portion of Claim 1 relating to "if said dynamic range is medium," there is no art or disclosure cited which anticipates or renders obvious the steps recited. The elements are unique and thus patentable.

Tai, et al. do not disclose or even imply the specific methods defined in Claims 1 to 17 of the present invention. In his rejection, the Examiner is picking and choosing elements disclosed in Tai, et al. and Ilbery, et al. to the exclusion of what the these reference as a whole teach to one skilled in the art. There is no substantive basis for combining these references, as contrary to the Examiner's contention, they are individually directed to different processing and have different objectives from each other and from the present invention.

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The Examiner has selected concepts from his personal knowledge of the art as the primary basis for the rejection without any support found in the reference(s) cited. The Examiner is improperly picking and choosing. It is a piecemeal construction of the invention. Such piecemeal reconstruction of a prior art patent in light of the instant disclosure is contrary to the requirements of 35 U.S.C. §103.

> The ever present question in cases within the ambit of 35 U.S.C. §103 is whether the subject matter as a whole would have been obvious to one of ordinary skill in the art following the teachings of the prior art at the time the invention was made. It is impermissible within the framework of Section 103 to pick and choose from any one reference only so much of it as will support a given position, to the exclusion of other parts necessary to the full appreciation of what such reference fairly suggests to one of ordinary skill in the art. (Emphasis in original) In re Wesslau 147 U.S.P.Q. 391, 393 (CCPA 1965)

If the Examiner wishes to discuss the substance of the claims contained herein with the intent of putting them into an allowable form, Applicants' attorney will be glad to speak with him at a mutually agreeable time by telephone and will cooperate in any way possible.

In view of the arguments contained herein, allowance of this case is warranted. Such favorable action is respectfully solicited.

Dated: March 19, 2003

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I hereby certify that this paper is being deposited on the date indicated below with the U.S. Postal Service as First Class Mail addressed to Commissioner of Patents & Trademarks, Washington, D.C. 20231

Signature: _____ Date: March 19, 2003
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APPENDIX A

"CLEAN" VERSION OF EACH PARAGRAPH/SECTION/CLAIM
37 C.F.R. § 1.121(b)(ii) AND (c)(i)

CLAIMS (with indication of amended) :

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1. (Twice Amended) A method for transforming a digitized image, said method comprising: providing said image as a plurality of pixels, wherein data for each pixel is in a first format; and

processing said data of each of said pixels by employing data from a region of interest which includes at least one pixel following said each of said pixels, and includes a plurality of neighboring pixels,

and producing a second format for said image, and

said method further comprising determining a dynamic range of pixel values of pixels in an encompassing neighborhood of the region of interest, and

wherein the step of processing includes making dynamic adjustments depending on the dynamic range of pixel values, wherein the step of making said dynamic adjustments includes producing a visually pleasing transition between text and picture areas in said image;

B1

and wherein said producing a visually pleasing transition includes:

if said dynamic range is high, implying said pixels in said encompassing neighborhood of said region of interest are in a text area or a line art area or in an area of an image that has a high contrast edge, wherein the edges of said text area, line art area and area of an image having high contrast edge are sharpened by computing a pixel data threshold value for said region of interest;

and comparing each pixel value in said region of interest to said pixel data threshold;

if said pixel value is greater than the pixel data threshold value,
a first value is placed in the corresponding position of the said second format image;

if said pixel value is less than or equal to the pixel data threshold value,
a second value is placed in the corresponding position of the said second format image;

if said dynamic range is medium,

computing a desired number of second values to be placed in said second format image in the region of interest;

ordering the pixels in the region of interest according to the ordering of a predetermined halftone array;

altering the order of a pixel in said ordering if said pixel has a value which is greater than the value of the next pixel in said order by a predetermined reordering threshold value;

B1 cont.

repeating said altering of the pixel order until the first and second values chosen for the second format image are no longer changed;

choosing said desired number of second values for the second format from the beginning of the said order, and assigning the remaining pixels values in the region of interest to said first value;

if said dynamic range is low,

using said predetermined halftone array to compute said first and second values for said second format image.

B2

14. (Amended) A method for processing at least a portion of an image, the method comprising employing a first rule of halftoning and a second rule of halftoning.

B3

16. (Amended) An article of manufacture comprising a computer usable medium having computer readable program means embodied therein for causing processing at least a portion of an image, the computer readable program code means in said article of manufacture comprising computer readable code means for causing a computer to effect the steps defined in claim 1.

17. (Amended) An article of manufacture comprising a computer usable medium having computer readable program means embodied therein for causing processing at least a portion of an image, the computer readable program code means in said article of manufacture comprising computer readable code means for causing a computer to effect the steps defined in claim 1.

APPENDIX B

VERSION WITH MARKINGS TO SHOW CHANGES MADE
37 C.F.R. § 1.121(b)(iii) AND (c)(ii)

1. (Twice Amended) A method for transforming a digitized image, said method comprising: providing said image as a plurality of pixels, wherein data for each pixel is in a first format; and

[halftoning] processing said data of each of said pixels by employing data from a region of interest which includes at least one pixel following said each of said pixels, and includes a plurality of neighboring pixels, [which form a square pixel array surrounding said each of said pixels], cl. 2

and producing a second format for said image, and

[using said second format for an output device which is a printer,]

said method further comprising determining a dynamic range of pixel values of pixels in an encompassing neighborhood of the region of interest, and

wherein the step of [halftoning] processing includes making dynamic adjustments depending on the dynamic range of pixel values, wherein the step of making said dynamic adjustments includes producing a visually pleasing transition between text and picture areas in said image; cl. 8

and wherein [the step of] said producing a visually pleasing transition includes:

if said dynamic range is high, implying said pixels in said encompassing neighborhood of said region of interest are in a text area or a line art area or in an area of an image that has a high contrast edge, wherein the edges of said text area, line art area and area of an image having high contrast edge are sharpened by computing a pixel data threshold value for said region of interest;

and comparing each pixel value in said region of interest to said pixel data threshold;

if said pixel value is greater than the pixel data threshold value,
a first value is placed in the corresponding position of the said second format image;

if said pixel value is less than or equal to the pixel data threshold value,
a second value is placed in the corresponding position of the said second format image;

if said dynamic range is medium,

computing a desired number of second values to be placed in said second format image in the region of interest;

ordering the pixels in the region of interest according to the ordering of a predetermined halftone array;

altering the order of a pixel in said ordering if said pixel has a value which is greater than the value of the next pixel in said order by a predetermined reordering threshold value;

repeating said altering of the pixel order until the first and second values chosen for the second format image are no longer changed;

choosing said desired number of second values for the second format from the beginning of the said order, and assigning the remaining pixels values in the region of interest to said first value;

if said dynamic range is low,

using said predetermined halftone array to compute said first and second values for said second format image[;

if all the image intensity values in the said region of interest are either very high or very low, outputting all said first values or all said second values to the second format image respectively].

14. (Amended) A method for [halftoning] processing at least a portion of an image, the method comprising employing a first rule of halftoning and a second rule of halftoning.

16. (Amended) An article of manufacture comprising a computer usable medium having computer readable program means embodied therein for causing [halftoning] processing at least a portion of an image, the computer readable program code means in said article of manufacture comprising computer readable code means for causing a computer to effect the steps [of] defined in claim 1[4].

17. (Amended) An article of manufacture comprising a computer usable medium having computer readable program means embodied therein for causing [halftoning] processing at least a portion of an image, the computer readable program code means in said article of manufacture comprising computer readable code means for causing a computer to effect the steps [of] defined in claim 1[5].